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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/446,641	12/22/99	HATAZAWA T	P99.2641

026263 IM31/0731
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EXAMINER	
DOVE, T	
ART UNIT	**PAPER NUMBER**
1745	8

DATE MAILED: 07/31/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.	Applicant(s)
09/446,641	Hatazawa et al.
Examiner	**Art Unit**
Tracy Dove	1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *29 May 2001* .

2a) ☒ This action is **FINAL.** 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *10-19* is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *10-19* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15) ☐ Notice of References Cited (PTO-892)

16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____

18) ☐ Interview Summary (PTO-413) Paper No(s). _____

19) ☐ Notice of Informal Patent Application (PTO-152)

20) ☐ Other:

DETAILED ACTION

This Office Action is in response to the communication filed on 5/29/01. Applicant's arguments have been considered, but are not persuasive. Claims 10-19 are rejected in view of the prior art of record. This Action is made **FINAL**, as necessitated by amendment.

Information Disclosure Statement

The information disclosure statement filed 4/3/00 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56© most knowledgeable about the content of the information, of each patent listed that is not in the English language. It has been placed in the application file, but the information referred to therein has not been considered.

Applicant stated that English abstracts of the non-English references were to have been submitted with the amendment filed 5/29/01, however, no abstracts were found by the Examiner. Applicant must submit the English abstracts of the non-English references along with a copy of the Information Disclosure Statement listing the references (1449 form).

Claim Objections

The objection to claim 12 has been withdrawn.

Claim Rejections - 35 U.S.C. § 112

The 35 U.S.C. 112, second paragraph, rejections of claims 14-16 have been withdrawn.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 10-19 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 10 and 12 recite a fluorocarbon polymer having a weight-average molecular weight of "greater than 572,500". A molecular weight of "greater than 572,500" is not supported by the specification as originally filed.

Claim Rejections - 35 U.S.C. § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 10-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Humphrey Jr. et al., US 5,922,493.

Humphrey teaches an electrochemical cell having a positive electrode, an absorber-separator sometimes referred to as a solid electrolyte, and a negative electrode. At least one of the electrodes or the absorber-separator comprises a porous polyvinylidene fluoride (PVDF) [clm 14], the PVDF electrodes having an electrode material combined therewith and the PVDF absorber-separator having an electrolyte material combined therewith. See col. 4, lin 44-52. The PVDF polymer may include either a homopolymer or copolymer, wherein the copolymers are either heterogeneous or homogeneous copolymers of vinylidene fluoride and hexafluoropropylene [clm 13]. The co-monomer is present from about 7 to about 25% by weight [clm 12]. The use of homogeneous copolymers for the manufacture of the electrode and electrolyte matrices is especially preferred. See col. 5, lin 9-22. Polymers that may be used are shown in Table III. The table shows various grades of KYNAR™ (trade name for PVDF and is commercially available) ranging in weight average molecular weights of 35,500 to 572,500. KYNAR™ 460 (572,000) and KYNAR™ 460 Black (373,500) are included in Table III [clm 11]. See col. 10, lin 33-34. Table IV also describes the combination of medium and high molecular weight grades to provide a PVDF homopolymer. See col. 10, lin 64-66. The positive electrode includes $LiMn_2O_4$ [clm 17] and the negative electrode includes petroleum coke (carbonaceous material) [clm 15,16]. See col. 14, lin 57-67.

Humphrey does not explicitly teach the weight average molecular weight of the matrix polymer is greater than 572,500.

However, Humphrey teaches the weight average molecular weight of the matrix polymer ranges from 35,500 to 572,500.

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the range "greater than 572,500" for the fluorocarbon polymer is considered obvious in view of a prior art teaching of "35,500 to 572,500" for a fluorocarbon polymer. Furthermore, Humphrey has a specific teaching to use a fluorocarbon polymer having a weight average molecular weight of 572,000 (KYNAR™ 460) in Table III.

Regarding claims 18 and 19, Humphrey teaches the PVDF polymers are cast in thin porous membranes. The electrode materials or the electrolyte materials can be incorporated into a PVDF solution prior to casting it into a film or sheet, after which the solution is converted to a porous polyvinylidene fluoride membrane combined with the electrode or electrolyte materials.

Humphrey does not explicitly state the solid-electrolyte layer is formed on the face of an electrode.

However, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because irrespective of how the solid electrolyte layer is formed, the products are the same. Thus, whether the solid electrolyte layers are formed directly on the electrode or formed as a separate layer, or any other method of forming the solid

electrolyte layer is used, the layers, as an end result, are the same. Furthermore, the courts have held that when similar products are produced, the product-by-process limitations are obvious. In re Brown 173 USPQ 685, In re Fessman 180 USPQ 324.

Response to Arguments

Applicant's arguments filed 5/29/01 have been fully considered but they are not persuasive.

Applicant argues that Humphrey does not teach or suggest a solid electrolyte having a matrix polymer having a fluorocarbon polymer with a weight average molecular weight greater than 572,500.

Examiner disagrees that Humphrey does not suggest a solid electrolyte having a matrix polymer having a fluorocarbon polymer with a weight average molecular weight greater than 572,500. Humphrey has a specific teaching to use a fluorocarbon polymer having a weight average molecular weight of 572,000 (KYNAR™ 460) in Table III. A fluorocarbon polymer having a weight average molecular weight of 572,000 clearly suggests a fluorocarbon polymer having a weight average molecular weight of 572,500.

Applicant argues that claims may be amended to exclude subject matter disclosed in the prior art. However, the claim amendments must be supported by the original specification. The original specification does not support a fluorocarbon polymer having a weight average molecular weight of 572,500.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tracy Dove whose telephone number is (703) 308-8821. The Examiner may normally be reached *Monday-Thursday from 8:00 AM - 6:30 PM.* My supervisor is Gabrielle Brouillette, who can be reached at (703) 308-0756. The Art Unit receptionist can be reached at (703) 308-0661 and the official fax number is (703) 305-3599.

July 28, 2001

CAROL CHANEY
PRIMARY EXAMINER